

WHAT IS CLAIMED IS:

✓ 1. A integration sequence comprising at least one recombination site or portion thereof.

5 2. The integration sequence of claim 1, wherein said integration sequence further comprises at least one element selected from the group consisting of one or more primer sites, one or more transcription or translation signals or regulatory sequences, one or more termination signals, one or more origins of replication, one or more selectable markers and one or more genes or portions of genes.

10 3. A target nucleic acid sequence which is flanked by at least a first and at least a second recombination site, wherein said target nucleic acid sequence comprises at least one integration sequence.

15 4. The target nucleic acid sequence of claim 3, wherein said integration sequence further comprises at least one element selected from the group consisting of one or more primer sites, one or more transcription or translation signals or regulatory sequences, one or more termination signals, one or more recombination sites or portions thereof, one or more origins of replication, one or more selectable markers, and one or more genes or portions of genes.

20 5. A method for selecting a target nucleic acid molecule comprising at least one integration sequence comprising:

25 incubating a target sequence of interest flanked by recombination sites with at least one integration sequence under conditions sufficient to cause at least one of said integration sequences to integrate in said target sequence; and

30 selecting for said target sequence.

6. The method of claim 5, wherein said selection comprises transferring said target sequence into a vector.

5 ✓ 7. A method for selecting a target nucleic acid molecule, comprising:
transferring a target sequence flanked by recombination sites and
comprising at least one integration sequence from a first nucleic acid molecule
to a second nucleic acid molecule; and
selecting for said second nucleic acid molecule comprising said target
sequence flanked by recombination sites.

10 ✓ 8. A method of determining the sequence of a nucleic acid molecule
comprising:
transferring a target sequence flanked by recombination sites and
containing at least one integration sequence from a first nucleic acid molecule to
a second nucleic acid molecule; and
determining the sequence of at least a portion of said target sequence.

15 9. The method according to claim 8, wherein said integration
sequence contains at least one primer site.

20 10. The method according to claim 8, wherein said transfer is
accomplished by recombinational cloning.

25 11. The method according to claim 8, wherein said transfer is
performed *in vitro* or *in vivo*.

✓ 12. A method of making one or more deletions in a nucleic acid
molecule comprising:

contacting a nucleic acid molecule which comprises at least a first recombination site with an integration sequence, the integration sequence comprising at least a second recombination site under conditions such that at least one of said integration sequences is inserted into said nucleic acid molecule; and

causing at least said first and said second recombination sites to recombine, thereby resulting in a deletion of at least a portion of said nucleic acid molecule.

✓ 13. A method for making one or more deletions in a nucleic acid molecule comprising:

obtaining said nucleic acid molecule which comprises at least a first and second recombination site; and

causing said first and said second recombination sites to recombine, thereby resulting in a deletion of at least a portion of said nucleic acid molecule.

✓ 14. A method of cloning a nucleic acid molecule or a population of nucleic acid molecules comprising:

inserting one or more integration sequences comprising at least one recombination site into at least one nucleic acid molecule; and

transferring one or more nucleic acid molecules flanked by recombination sites by recombinational cloning into one or more vectors.

15. The method of claim 14, wherein said nucleic acid molecule is genomic, chromosomal or cDNA.

✓ 16. A method for cloning a nucleic acid molecule or a population of nucleic acid molecules comprising:

inserting one or more integration sequences comprising at least one recombination site into at least one nucleic acid molecule thereby resulting in said

nucleic acid molecule comprising at least a first and a second recombination site;
and

causing said at least first and second recombination sites to recombine.

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17. The method of claim 16, wherein said recombination of said first
and second recombination sites results in a circular molecule.

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18. The method of claim 16, wherein said first and second
recombination sites are separated by at least a portion of said nucleic acid
molecule.

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19. The method of claim 16, wherein said integration sequence
comprises at least one element selected from the group consisting of one or more
primer sites, one or more transcription or translation signals or regulatory
sequences, one or more termination signals, one or more origins of replication,
one or more selectable markers, and one or more genes or portions of genes.

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20. The method of claim 16, wherein said integration sequence
comprises one or more origins of replication and/or one or more
selectable markers.

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~~21.~~ A method of circularizing a linear nucleic acid molecule
comprising:

obtaining a linear nucleic acid molecule comprising at least a first and
second recombination site; and

causing said first and second recombination site to recombine.

22. The method of claim 21, wherein said recombination sites are
located at or near each terminus of said linear nucleic acid molecule.

23. The method of claim 21, wherein said first and/or second recombination sites are added to said linear nucleic acid molecule by amplification with one or more primers comprising at least one recombination site or portion thereof.

24. The method of claim 21, wherein said first and/or second recombination sites are added to said linear nucleic acid molecule by adding one or more adapters comprising at least one recombination site or portion thereof.

25. The method of claim 21, further comprising incubating said linear nucleic acid molecule with at least one integration sequence under conditions sufficient to cause at least one of said integration sequences to insert in said linear nucleic acid molecule.

26. The method of claim 21, further comprising incubating said circularized nucleic acid molecule with at least one integration sequence under conditions sufficient to insert at least one of said integration sequences in said circularized molecule.

27. The method of claim 16, wherein said nucleic acid molecule is genomic, chromosomal or cDNA.

28. The method of claim 21, wherein said nucleic acid molecule is genomic, chromosomal or cDNA.

29. A method according to claim 13, wherein said first and said second recombination sites recombine *in vitro*.